

***IN-SITU FILTERS, METHOD OF FORMING SAME AND SYSTEMS FOR
CONTROLLING PROPPANT FLOWBACK EMPLOYING SAME***

ABSTRACT OF THE INVENTION

The present invention is directed to a method and apparatus for controlling the flowback of proppants that have been placed inside fractures of a subterranean formation. The apparatus is defined by a plurality of solid balls, which comprise compressed springs that are encapsulated in a mass of fibrous material and an aqueous soluble mixture of a filler material and an adhesive. In the method according to the present invention, the solid balls are mixed in a viscous slurry and injected into the fractures with the proppants. Over time the aqueous soluble mixture dissolves releasing the compressed springs to fill the openings of the fractures. The fibrous network and expanded springs, which remain, act as a filter or screen to restrict the movement of the proppants from flowing back to the surface during production of the well.